

REMARKS

The Office Action mailed on May 21, 2003, has been reviewed and the comments of the Patent and Trademark Office have been considered. Prior to this paper, claims 1-14 were pending in the present application. By this paper, Applicants cancel claims 10 and 11 without prejudice or disclaimer and add claims 15-17. Therefore, claims 1-9 and 12-17 are now pending in the present application.

Applicants respectfully submit that the present application is in condition for allowance for the reasons that follow.

Reference Characters

Reference characters have been retained in the claims but have no effect on the claim scope per MPEP § 608.01(m).

Objections to the Specification

The abstract of the disclosure was objected to in the Office Action. In response, Applicants have amended the abstract as seen above, and respectfully request reconsideration.

Rejections Under 35 U.S.C. §112, Second Paragraph

In the Office Action, claims 1 and 7-9 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. As seen above, claims 1 and 7-9 have been amended, and Applicants respectfully request reconsideration in view of these amendments.

Still further, the Office Action states that "percentages should also be corrected in the specification at pages 4-6, 10 and 13." Applicants have amended the specification as seen above, and respectfully request reconsideration in view of the amendments.

Claim Rejections Under 35 U.S.C. §103(a)

In the Office Action, independent claim 1 was rejected under 35 U.S.C. §103(a) as being unpatentable over EP 0764455 in view of "Applicants' Admitted Prior Art" (AAPA). In response, Applicants respectfully traverse the rejection as to at least claim 11, and, have amended claim 1 to incorporate the recitations of claim 11, and submit that claim 1 is now allowable for at least the following reasons.

Applicants rely on MPEP § 2143, which states that:

[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

It is respectfully submitted that at least the first and third criteria of MPEP § 2143 have not been met in the Office Action.

The Cited References Do Not Suggest All Claim Recitations

Even if the first requirement of MPEP § 2143 was satisfied in the Office Action (which it is not, as explained below), the cited references still do not meet the third requirement, which is that "the prior art reference (or references when combined) must teach or suggest all the claim limitations."

As seen above, claim 1 now incorporates the recitations of claims 10 and 11. Specifically, claim 1 recites that an Al_2O_3 layer is formed on the surface of the filter, and that the Al_2O_3 layer is predominantly $\alpha\text{-Al}_2\text{O}_3$. This is an important recitation. As the specification teaches, $\alpha\text{-Al}_2\text{O}_3$ has a structure that is significantly different from the structure of a $\theta\text{-Al}_2\text{O}_3$ at least in that the former has a denser structure than the latter; $\theta\text{-Al}_2\text{O}_3$ having a more porous structure. The specification further teaches that the α aluminum oxide is obtained during a preoxidation step under controlled conditions. Specifically, the oxide layer

having predominantly a α - Al_2O_3 structure is obtained *inter alia* by forming the oxide layer at a temperature between 1000°C and 1200°C and preferably between 1100°C and 1200°C . The specification specifically teaches that oxide layers formed at lower temperatures contain at least some θ - Al_2O_3 and show more defects. (See specification, page 5, lines 25-30 to page 6, lines 1-24.)

The Office Action correctly points out that EP '455 does indeed teach preoxidizing a filter. However, in contrast to the present invention, EP '455 does not disclose, teach, or suggest a layer being predominantly α - Al_2O_3 . In fact, the specification teaches away from such a layer. On page 5, lines 10-13, EP '455 states that "the filter is heat-treated at a temperature from 600°C and 1000°C in an oxidizing atmosphere such as air for 1-20 hours. That heat treatment may be conducted by electric current-applying heating, using the resistance heat-generating properties of the sintered body." (Emphasis added.) This range is in the range that Applicants' specification specifically teaches will cause the formed oxide layer to have a poor Al_2O_3 quality:

Although, when the oxide layer is formed at a temperature between 1100°C and 1200°C , the oxide layer shows almost no defects. This is in contrast with oxide layers formed at lower temperatures for example at 1000°C , these oxide layers contain at least to some extent θ - Al_2O_3 and show much more defects. The quality of the Al_2O_3 layer *further deteriorates when the oxidation is carried out at still lower temperatures.*

(Specification, page 6, lines 9-14, emphasis added.) That is, one of ordinary skill in the art seeking to obtain a filter according to Applicants' invention would recognize that EP '455 does not teach an oxidation layer having a structure predominantly of α - Al_2O_3 and in fact teaches an oxide layer having θ - Al_2O_3 and showing more defects.

Further, the Office Action has not proffered a sufficient rationale or provided sufficient evidence as to why the oxide layer of EP '455 has an α - Al_2O_3 structure. Other than the statement that the "alumina layer will inherently be predominantly alpha-alumina because it is formed at between 600 - 1000°C ", the Office Action is completely silent in presenting a rationale for the proffered inherency argument.

Applicants rely on MPEP § 2112, which states that while “a rejection under 35 U.S.C. §102/103 can be made when the prior art product seems to be identical except that the prior art is silent to an inherent characteristic,” the “[E]xaminer *must* provide rationale or evidence tending to show inherency.” (MPEP § 2112, subsections 3 and 4, emphasis added.) It is respectfully submitted that the rationale identified as showing inherency that has been proffered in the present Office Action is not adequate to support a rejection based on inherency, in general, and in particular, in view of Applicants’ specification, which teaches just the opposite (that the identified temperature range should result in an oxide layer that is *not* predominantly α -Al₂O₃, as discussed above). In considering the statement that because a layer is formed at a given temperature range, the formation of α -Al₂O₃ is inherent, it is respectfully submitted that § 2112 inherency is not being properly implemented. In arriving at this conclusion, Applicants note the following excerpt from MPEP § 2112:

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijkaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted)

(Emphasis added.) Inherency means that *the missing descriptive matter is necessarily present* in the reference. The courts have allowed the PTO to rely on inherency arguments to free the PTO from the necessity of finding references which explicitly state that inherent elements are present. This is because certain characteristics are inherent, and the references will most probably not mention these elements, and, as such, will be difficult to find. For example, it is not necessary to find a reference that explicitly states that plutonium 239 is radioactive, as plutonium 239 is always radioactive. That is, radioactivity is an inherent feature of plutonium 239. However, inherency is not a panacea that enables the PTO to use references which are

deficient in teaching certain elements of a claim. Recognizing the power of the inherency argument, the courts have tempered its use, as is seen in § 2112, where the PTO has stipulated that the examiner corps must follow certain procedures before invoking inherency: the “examiner must provide rationale or evidence tending to show inherency.”

In the present case, the rationale provided in the Office Action is insufficient. The statement that “alumina layer will inherently be predominantly alpha-alumina because it is formed at between 600-1000^O C” does not satisfy the PTO’s burden to provide rationale or evidence showing that “the missing descriptive matter is necessarily present,” especially in view of the teachings found in Applicants’ specification.

In sum, even if the first requirement of MPEP § 2143 is satisfied, the third requirement of MPEP § 2143 is not satisfied in the Office Action in regard to at least claim 11 (now claim 1), since the cited references do not teach each and every element of the present invention. Thus, claim 1 and the claims that depend from claim 1 are allowable.

Lack of Suggestion or Motivation to Modify or Combine the References

The Office Action does not identify where the prior art suggests the desirability of the claimed invention. MPEP § 2143.01, entitled *Suggestion or Motivation to Modify the References*, states that the “prior art *must* suggest the desirability of the claimed invention.” (emphasis added; citations omitted) It further states that in

“determining the propriety of the Patent Office case for obviousness . . . it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art *having the reference before him* to make the proposed substitution, combination, or other modification.”

(Emphasis added, citations omitted.) It is respectfully submitted that one of ordinary skill in the art having EP ’455 before him or her would not be motivated to combine the teachings of the EP reference with the AAPA.

The Office Action relies on the background section of Applicants’ specification (the AAPA) to teach “a means for the production of coal-derived gas.” This is because EP ’455 is solely directed towards providing a filter for exhaust gas discharged from engines, boilers,

ovens, etc., utilizing *diesel fuel*. The reference is completely silent in regard to teaching the use of the filter of EP '455 to filter *coal-derived gas*, as is claimed in the present invention. It is respectfully submitted that it would have been an inventive step and not an obvious step to incorporate the EP filter into a coal burning power plant or the like, assuming *arguendo* that the filter of EP '455 would provide results comparable to the present invention if used to filter coal-derived gas.

Still further, one of ordinary skill in the art would be discouraged from utilizing the filter of EP '455, since EP '455 teaches that "good mechanical properties [of the filters] are shown at an operating temperature of 900⁰ C or less." (EP '455, page 5, lines 19-20.) In contrast, as Applicants' specification teaches, some embodiments of the claimed invention can withstand temperatures up to 1100⁰ C. (Specification, page 7, lines 29-30.) Thus, one of ordinary skill in the art would be discouraged from using the filter of the EP reference to filter coal-derived gas.

Still further, the present invention, having the α -Al₂O₃ structure, provides for a filter that can be used in both an oxidizing atmosphere and a reducing atmosphere. Assuming *arguendo* that the EP reference does teach sufficient α -Al₂O₃ structure, there is absolutely no suggestion that a filter having such a structure will provide good results in a reducing atmosphere. This is yet another reason why one of ordinary skill in the art would not know to implement the teachings of the EP reference into the AAPA.

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In summary, because of the lack of suggestion or motivation in the prior art to modify the reference, the first requirement of MPEP § 2143 has not been met and, hence, a *prima facie* case of obviousness has not been established.

Claim 14

Claim 14 recites that hot gases are filtered in a system according to claim 1 at temperatures higher than 850°C. The Office Action states that the filter of EP '455 "will inherently be stable at temperatures over 850⁰ C and corrosion resistant." Applicants respectfully submit that this is not the case. Relying on the above discussion of the PTO's burden when using inherency arguments, Applicants respectfully submit that the filter of EP

'455 is not inherently stable at temperatures over 850⁰ C. Reconsideration is respectfully requested.

New Claims

As seen above, Applicants have added new claims 15-17. These claims are allowable for at least the reason that they depend from claim 1, a claim that is allowable. Still further, claim 15 is allowable because the EP reference is silent in regard to teaching a filter that is used at such temperatures. Relying on the above discussion of the PTO's burden when using inherency arguments, Applicants respectfully submit that the filter of EP '455 is not inherently stable at temperatures 1100⁰ C.

Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. § 1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Examiner Lawrence is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

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